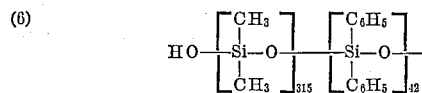


and tested on an Instron machine. The test strip had a tensile strength of 330 p.s.i. and an elongation of 125%.

#### Example 2

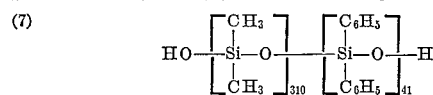
In this example a silanol-terminated diorganopolysiloxane material with the approximate average formula:



and having a viscosity of approximately 1550 centistokes at 25° C., was employed. A quantity of 1000 parts of the fluid of Formula 6 was blended with 300 parts of the fumed silica filler described in Example 1 in a change can mixer at about 100° C. to 150° C. A mixture was prepared containing 30 parts of the resinous copolymer of (CH<sub>3</sub>)<sub>3</sub>SiO<sub>0.5</sub> units and SiO<sub>2</sub> units, described in Example 1, and 250 parts of the mixture of the fluid of Formula 6 and the fumed silica filler. This mixture was deaerated and catalyzed with 5 parts of a 10% solution of tin octoate in octamethylcyclotetrasiloxane. The mixture was poured onto a tin-plated casting tray and cured for 16 hours at 65° C. A 100 mil thick strip, ¼ inch by 3 inches was cut from the slab and tested on an Instron machine. This material showed a tensile strength of 500 p.s.i. and an elongation of 200%. Additionally, due to the selection of the silanol-terminated diorganopolysiloxane fluid and the filler, the cured slab was both clear and transparent.

#### Example 3

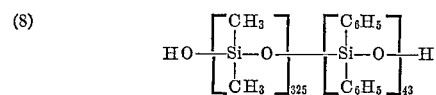
In a change can mixture, a blend was prepared of 1000 parts of a silanol-terminated diorganopolysiloxane fluid with a viscosity at 25° C. of approximately 1500 centipoises, having the approximate average formula:



and 300 parts of a precipitated silica filler with a surface area of about 160 square meters per gram. A quantity of 100 parts of the blend described above was hand-mixed with 16 parts of the resinous copolymer of (CH<sub>3</sub>)<sub>3</sub>SiO<sub>0.5</sub> units and SiO<sub>2</sub> units described in Example 1. A film was formed by curing a mixture of 50 parts of the three-component mixture, just described, with 0.12 part of butyl glycidyl ether and 0.2 part of dimethyl soya amine for 16 hours at 65° C. A strip 75 mils thick, and with dimensions of ¼ inch by 3 inches was cut from this film and tested on an Instron machine. The material had a tensile strength of 415 p.s.i. and an elongation of 450%. Additionally, the film was clear and transparent.

#### Example 4

To show the stability of a potting composition formed according to the present invention with a reinforcing silica filler as compared with a potting composition utilizing ethyl silicate as a cross-linking agent with a reinforcing silica filler, two materials were prepared. A mixture was prepared containing 500 parts of a silanol-terminated diorganopolysiloxane with a viscosity at 25° C. of about 1650 centipoises, having the approximate average formula:



and 125 parts fumed silica with a surface area of about 200 square meters per gram having been treated with about 20 parts of octamethylcyclotetrasiloxane for each 100 parts of the fumed silica. This blend was mixed and heated at 100–105° C. for 1½ hours and was then passed over a 3-roll paint mill. The final viscosity of the material was 26,000 centipoises at 25° C.

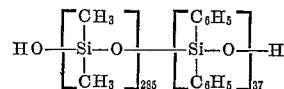
A first portion of 125 parts of the above-described mixture was blended with 3 parts of condensed ethyl silicate

and allowed to stand overnight. The viscosity measurement the next day was 1,360,000 centipoises, indicating that the combination of the ethyl silicate and the reinforcing silica filler had caused substantial curing of the silanol-terminated diorganopolysiloxane material.

A second portion of 125 parts of the blend of filler and silanol-terminated diorganopolysiloxane was mixed with 15 parts of a resinous copolymer of (CH<sub>3</sub>)<sub>3</sub>SiO<sub>0.5</sub> units and SiO<sub>2</sub> units in a ratio of 0.77:1. These materials were mixed, allowed to stand overnight, and a viscosity measurement taken. The viscosity after standing overnight was 10,000 centipoises and, six months later, the viscosity was essentially unchanged. However, by blending the proper amount of catalyst with this potting resin, a cured, clear, transparent potting material could be formed.

#### Example 5

A silanol-terminated diorganopolysiloxane fluid was formed by heating, at 180° C., a mixture of 1,000 parts of octamethylcyclotetrasiloxane and 2.2 parts of a 0.45% solution of potassium hydroxide in octamethylcyclotetrasiloxane. When this material had polymerized, a quantity of 350 parts of octaphenylcyclotetrasiloxane was added and heating was continued for about 6 hours. A few drops of distilled water were added, while maintaining the temperature at 180° C., and a silanol-terminated diorganopolysiloxane fluid was formed with a viscosity of 1200 centipoises at 25° C. and a refractive index of 1.4526. This corresponds to the approximate average formula:



A potting compound is formed by blending 600 parts of the fluid (9) described above with 167 parts of a 60% solid solution of a resinous copolymer of (CH<sub>3</sub>)<sub>3</sub>SiO<sub>0.5</sub> units and SiO<sub>2</sub> units in a ratio of 0.55:1 in xylene, and 210 parts of a precipitated silica filler with a surface area of about 150 square meters per gram. The mixture is blended and is catalyzed with 12.5 parts of tin octoate. A prototype of a precision gear for a timing device is placed into a cavity and the just prepared organopolysiloxane composition is poured around it and deaerated. The entire assembly is placed into an oven and heated at 50° C. for a period of 24 hours. The prototype, now encased in the solidified organopolysiloxane, is removed from the oven and the polysiloxane carefully removed from the prototype. The solidified organopolysiloxane is clear, transparent, and strong and is used for casting epoxy gears for use in the timing device. The transparency of the mold allows detection of voids prior to curing of the epoxy resin and also allows an inspection of the casting to be certain that an over-concentration of the amine catalyst used to cure the epoxy resin does not develop. Such transparent molds can also be utilized, for example, in casting prosthetic devices to assure that no foreign bodies are present in the device.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A composition of matter consisting essentially of:
  - (1) a silanol-terminated organopolysiloxane fluid having a refractive index of from 1.45 to 1.46 and having the formula:



where  $n$  is an integral number of from about 250 to 1500, 11% to 13.3% of the R' groups are phenyl radicals and the remaining R' groups are substantially all methyl radicals,

- (2) a resinous copolymer of (CH<sub>3</sub>)<sub>3</sub>SiO<sub>0.5</sub> units and SiO<sub>2</sub> units in a ratio of from 0.5:1 to 1:1, and
- (3) a reinforcing silica filler.